DETAILED ACTION

Application Status

Applicant's arguments and amendments filed 9/25/2009 are acknowledged. With this amendment, claim 14 is amended and claims 14-26 are pending.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 14 and 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moriuchi et al WO 99/63004 (for rejection purposes, Moriuchi et al US 6436557 is used as English Translation) in view of Oikawa et al US 5708128.

Moriuchi teaches a process of producing a cable comprising at least one transmissive element (see col. 1, lines 30-35) and an expanded and cross-linked coating layer in a radially outer position with respect to said at least one transmissive element, said coating layer comprising a composition including an expandable cross-

linkable polymeric material (see abstract). The method comprises: extruding said composition via an extruder (col. 4, lines 37-42 and col. 10, lines 25-28); and forming a coating layer made of expandable and cross-linkable polymeric material with the composition thus extruded (Moriuchi teaches expanding and cross-linking the coating (col. 4, lines 43-50), therefore the coating layer must be made of expandable and cross-linkable material). The materials are also expandable and cross-linkable materials because they are the same materials used in the instant invention (see below). Moriuchi further teaches expanding and cross-linking the coating layer (col. 4, lines 43-50). The expansion and cross-linking steps are taught by Moriuchi as being carried out downstream of the extrusion step (col. 11, lines 63-67) via heating (inherently by a heating fluid), wherein the method is operated in a manner to avoid expansion and cross-linking of the polymeric material prior to the actual disclosed expanding and cross-linking steps. Although this is not explicitly stated by Moriuchi, it is implicit in the disclosure that the extrusion process is not meant to expand or cross-link the coating layer because Moriuchi teaches an explicit and separate process for expanding and cross-linking the coating layer (i.e. heating, col. 11, line 67).

Although Moriuchi does not teach performing the heating step at atmospheric pressure, it is well known in the art that atmospheric pressure is the cheapest and safest pressure to operate at. Oikawa et al teaches a process of cross-linking a polymer, and performs the heat treatment at atmospheric pressure (col. 33, lines 20-21). It would have been obvious to one skilled in the art at the time of the invention to have performed the expansion and cross-linking step taught by Moriuchi at atmospheric

pressure because as mentioned above, atmospheric pressure is the cheapest and safest pressure in which process steps can be done.

Per claim 19, Moriuchi teaches the composition comprising an expanding agent and a cross-linking agent (see above). Per claim 20, Applicant discloses that it would be desirable for cross-linking agent and expanding agent to differ by at most 50°C, more preferably 30°C (see [0056] and [0058] of PGPub). Applicant further discloses that preferably, the cross-linking agent and expanding agent are selected from among those listed (see [0059] and [0060] of PG pub). Since Moriuchi teaches the same expanding and cross-linking agent as Applicant (specifically, cross-linking agent dicumyl peroxide and expanding agent being acidic mixture including calcium carbonate), the decomposition temperatures would differ by at most 50°C. Per claims 21 and 22, Moriuchi teaches dicumyl peroxide being an organic peroxide which is added into the coating layer (col. 12, lines 1-3). Per claim 23, Moriuchi teaches the coating layer to be made up of a mixture of calcium carbonate (an organic acid), interpreted as the expanding agent (see abstract and col. 8, lines 50-67). Per claim 24, Moriuchi teaches cooling the cable after cross-linking and expanding (col. 4, lines 45-50).

4. Claims 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moriuchi et al WO 99/63004 (for rejection purposes, Moriuchi et al US 6436557 is used as English Translation) in view of Oikawa et al US 5708128, further in view of Hatsuda et al US 6207772.

Although Moriuchi is silent regarding the exact parameters of the heat treatment to cross-link and expand the disclosed coating layer, Hatsuda teaches a method to cross-link a polymer comprising a heat treatment at an elevated temperature using an oven or a dryer (col. 16, lines 4-21). It would be obvious to one skilled in the art at the time of the invention to have used the heat treatment process taught by Hatsuda with the cable forming method taught by Moriuchi because such heat treatment processes are well-known and widely recognized in the art. Per claim 17, Hatsuda teaches that the temperature of the heat treatment is dependent on the cross-linking agent to be used and therefore is a result-effective variable. Therefore, one skilled in the art would be able to optimize the temperature to yield the best results via routine experimentation (see MPEP 2144.05). Per claims 15 and 16, Hatsuda teaches using an air current type drier, which is would inherently be subject to forced air circulation. It would be obvious to one skilled in the art to have the heating fluid circulate (as opposed to remaining stagnant) because it is well known in the art that circulation will assist in maintaining a constant, even temperature around the surface area of the object that is being treated. Additionally, since the heating fluid circulation affects the temperatures around various spots of the surface of the object, it is therefore considered a result-effective variable (since temperature has been established as result-effective). Therefore, one skilled in the art, would be able to optimize the flow rate to yield the an efficient heating process via routine experimentation (see MPEP 2144.05). Per claim 18, Hatsuda teaches using an air current type drier (col. 16, line 21). Additionally, it would be obvious to one skilled

in the art to use an inert atmosphere so as to not cause any undesired reactions with the layer other then the desired cross-linking/expanding.

5. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moriuchi et al WO 99/63004 (for rejection purposes, Moriuchi et al US 6436557 is used as English Translation) in view of Oikawa et al US 5708128, further in view of Belli et al WO 99/33070.

Per claims 25 and 26, although Moriuchi is silent regarding the metallic screen (Moriuchi does teach an outer sheath, see Examples, Table 13/14), Belli teaches having a metal shield around the coating layer (pg. 13, lines 27-35), and further coated with a protective outer sheath (pg. 14, lines 5-9). It would have been obvious to one skilled in the art at the time of the invention to have also placed a metal shield around the coating layer as taught by Belli, in the invention of Moriuchi, because Belli teaches that this allows for recovery of any residual deformation of the expanded layer, as it presses against the inside of the metal screen (pg. 14, lines 1-5).

Response to Arguments

6. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHAN T. LEONG whose telephone number is (571)270-5352. The examiner can normally be reached on Monday to Friday, 9:00am to 6:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571)272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/NATHAN T LEONG/
Examiner, Art Unit 1792

/Timothy H Meeks/
Supervisory Patent Examiner, Art Unit 1792